

Interactive comment on “Sensitivity study of the Regional Climate Model RegCM4 to different convective schemes over West Africa” by Brahima Koné et al.

Anonymous Referee #2

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General Comments

This manuscript concerns the performance of the RegCM4 regional climate model in the simulation of present-day climate over West Africa, focusing on temperature and precipitation statistics. The most interesting issue addressed here is the investigation of whether using CLM4.5 as land surface scheme does add any value to the model's performances. Although the issue on sensitivity of convective schemes has been already investigated in the past (Sylla et al., . . . : Djotang et al., 2010; Komkoua et al., 2016; Adeniyi, 2014; and many others over the world), the subject is indeed interesting and deserves eventual publication on Earth System Dynamics.

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However, before being acceptable for publication, there are some questions and clarifications that, in my opinion, have to be addressed.

- 1) Generally, any result that is used to support a statement about model performance (either positive or negative) should include a test of statistical significance (Fig. 3 and Fig. 6). Differences shown are significant?
- 2) Looking at precipitation extremes would be my first suggestion but the authors could look at other variables/statistics.
- 3) There is no justification for selecting 2003 and 2004 the analysis? Their motivations are not clear, Is there any particularities (dry, wet or normal) for those years?
- 4) Recent studies based were with RegCM simulation on a grid of 25km, in this manuscript there is no explanation on why they are running the simulation with a resolution of 50km (0.44°x0.44°).
- 5) My other concern is about the observation data used in this study, why they using the 2.5°x2.5° GPCP, instead of 1°x1° GPCP dataset? Why only GPCP, when other products like CHIRPS (0.01°x0.01°), ARC2 (0.1°x0.1°) are available and freely accessible.
- 6) For me, to give originality to this paper, authors should analyze diurnal cycle of rainfall.
- 7) Authors should convince the readers on the novelty of this research.

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